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Bank of Canada Monthly Research Update

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This monthly newsletter features the latest research publications by Bank of Canada economists. The report includes papers appearing in external publications and staff working papers published on the Bank of Canada's website.

PUBLISHED PAPERS

In-Press

Ahnert, Toni, "Rollover Risk, Liquidity and Macroprudential Regulation", Journal of Money, Credit and Banking, December 2016, Volume 48, Issue 8, Pages 1753-1785

Amirault, David, Daniel de Munnik & Sarah Miller, "What drags and drives mobility? Explaining Canada's aggregate migration patterns", Canadian Journal of Economics, August 2016, Volume 49, Issue 3, Pages 1035-1056

Forthcoming

Damar, Evren & Adi Mordel, "International Banking and Cross-Border Effects of Regulation: Lessons from Canada", International Journal of Central Banking

Devereux, Michael, Wei Dong & Ben Tomlin, "Importers and Exporters in Exchange Rate Pass-Through and Currency Invoicing", Journal of International Economics

Dunbar, Geoffrey, Ruqu Wang & Xiaoting Wang, "Rationalizing Irrational Beliefs", Theoretical Economics Letters

STAFF WORKING PAPERS

Alexander, Patrick, "Producer Heterogeneity, Value-Added, and International Trade", Bank of Canada Staff Working Paper 2016-54

Bauer, Gregory & Eleonora Granziera, "Monetary Policy, Private Debt and Financial Stability Risks", Bank of Canada Staff Working Paper 2016-59

Bulusu, Narayan, Jefferson Duarte & Carles Vergara-Alert, "Can the Common-Factor Hypothesis Explain the Observed Housing Wealth Effect?", Bank of Canada Staff Working Paper 2016-62

Chang, Bo Young & Greg Orosi, "Equity Option-Implied Probability of Default and Equity Recovery Rate", Bank of Canada Staff Working Paper 2016-58

Chin, Faith & Corey Garriott, "Options Decimalization", Bank of Canada Staff Working Paper 2016-57

Duprey, Thibaut, "Bank Screening Heterogeneity", Bank of Canada Staff Working Paper 2016-56

Fontaine, Jean-Sébastien, "What Fed Funds Futures Tell Us About Monetary Policy Uncertainty", Bank of Canada Staff Working Paper 2016-61

Kabaca, Serdar, "Quantitative Easing in a Small Open Economy: An International Portfolio Balancing Approach", Bank of Canada Staff Working Paper 2016-55

Page, Frank H. & Sofia Priazhkina, "Information Sharing and Bargaining in Buyer-Seller Networks", Bank of Canada Staff Working Paper 2016-63

Paligorova, Teodora & João Santos, "Non-Bank Investors and Loan Renegotiations", Bank of Canada Staff Working Paper 2016-60

ABSTRACTS

Rollover Risk, Liquidity and Macroprudential Regulation

I study rollover risk in wholesale funding markets when intermediaries hold liquidity ex ante and fire sales may occur ex post. Multiple equilibria exist in a global rollover game: intermediate liquidity holdings support equilibria with both positive and zero expected liquidation. A simple uniqueness refinement pins down the private liquidity choice, which balances the forgone expected return on investment with reduced fragility and costly liquidation. Due to fire sales, liquidity holdings are strategic substitutes. Intermediaries free ride on the holdings of other intermediaries, causing excessive liquidation. To internalize the systemic nature of liquidity, a macroprudential authority imposes liquidity buffers.

What drags and drives mobility? Explaining Canada's aggregate migration patterns

Understanding the factors that determine the migration of labour between regions is crucial for assessing the response of the economy to macroeconomic shocks and identifying policies that will encourage an efficient reallocation of labour. Using a gravity model, Poisson pseudo-maximum likelihood specifications and Census data for 69 economic regions, this article examines the determinants of aggregate migration within Canada from 1991 to 2006. Our results suggest that migration tends to increase with differences in labour market performance. We also find that provincial borders have the strongest impact on migration involving low-populated regions and that distance is most important across provincial borders.

International Banking and Cross-Border Effects of Regulation: Lessons from Canada

We study how changes in prudential requirements affect cross-border lending of Canadian banks by utilizing an index that aggregates adjustments in key regulatory instruments across jurisdictions. We show that when a destination country tightens local prudential measures, Canadian banks lend more to that jurisdiction, and the effect is particularly significant when capital requirements are tightened and weaker if banks lend mainly via affiliates. Our evidence also suggests that Canadian banks adjust foreign lending in response to domestic regulatory changes. The results confirm the presence of heterogeneous spillover effects of foreign prudential requirements.

Importers and Exporters in Exchange Rate Pass-Through and Currency Invoicing

We explore the role of product market structure on exchange rate pass-through and currency of invoicing in international trade, using very detailed transaction-level data on Canadian imports over a six-year period. A novel feature of the study is the importance of market share on both sides of the importing relationship--that of the exporting and importing firms. We find that exchange rate pass-through and the currency of invoicing are dependent on the size (or market share) of both importers and exporters. Very small or very large exporters have higher rates of pass-through and tend to invoice in the foreign currency, while it is the opposite for exporters in the middle range. By contrast, for larger importers, pass-through is lower and local currency invoicing is more prevalent. These findings are consistent with a simple model of trade pricing under monopolistic competition with endogenous markups and heterogeneity in firm size (on both sides of the transaction).

Rationalizing Irrational Beliefs

In this paper we propose a “behavioral equilibrium” definition for a class of dynamic games of perfect information. We document various experimental studies of the Centipede Game in the literature that demonstrate that players rarely follow the subgame perfect equilibrium strategies. Although some theoretical modifications have been proposed to explain the outcomes of the experiments, we offer another: players can choose whether or not to believe that their opponents use subgame perfect equilibrium strategies. We define a “behavioral equilibrium” for this game; using this equilibrium concept, we can reproduce the outcomes of those experiments.

Producer Heterogeneity, Value-Added, and International Trade

Standard new trade models depict producers as heterogeneous in total factor productivity. In this paper, I adapt the Eaton and Kortum (2002) model of international trade to incorporate tradable intermediate goods and producer heterogeneity in value-added productivity. In equilibrium, this yields a positive relationship between the international trade elasticity and the share of intermediate goods in production. This relationship is absent from the standard model and is driven by the extensive margin of trade. I then use cross-country sectoral data from 1995 to 2010 and estimate the trade elasticity, finding empirical support for this relationship and for the importance of the extensive margin. This model yields results that are similar to those of the standard model with respect to the overall magnitude of gains from trade. Importantly, however, whereas the standard model suggests that gains from trade are higher in sectors that use intermediate goods, I find that this is no longer true under the value-added heterogeneity model.

Monetary Policy, Private Debt and Financial Stability Risks

Can monetary policy be used to promote financial stability? We answer this question by estimating the impact of a monetary policy shock on private-sector leverage and the likelihood of a financial crisis. Impulse responses obtained from a panel VAR model of 18 advanced countries suggest that the debt-to-GDP ratio rises in the short run following an unexpected tightening in monetary policy. As a consequence, the likelihood of a financial crisis increases, as estimated from a panel logit regression. However, in the long run, output recovers and higher borrowing costs discourage new lending, leading to a deleveraging of the private sector. A lower debt-to-GDP ratio in turn reduces the likelihood of a financial crisis. These results suggest that monetary policy can achieve a less risky financial system in the long run but could fuel financial instability in the short run. We also find that the ultimate effects of a monetary policy tightening on the probability of a financial crisis depend on the leverage of the private sector: the higher the initial value of the debt-to-GDP ratio, the more beneficial the monetary policy intervention in the long run, but the more destabilizing in the short run.

Can the Common-Factor Hypothesis Explain the Observed Housing Wealth Effect?

The common-factor hypothesis is one possible explanation for the housing wealth effect. Under this hypothesis, house price appreciation is related to changes in consumption as long as the available proxies for the common driver of housing and non-housing demand are noisy and housing supply is not perfectly elastic. We simulate a model in which a common factor drives the relation between house prices and consumption to examine the extent to which the common-factor hypothesis can explain the housing wealth effect. Our results indicate that the common-factor hypothesis can easily explain the strong housing wealth effect estimated with US state-level data.

Equity Option-Implied Probability of Default and Equity Recovery Rate

There is a close link between prices of equity options and the default probability of a firm. We show that in the presence of positive expected equity recovery, standard methods that assume zero equity recovery at default misestimate the option-implied default probability. We introduce a simple method to detect stocks with positive expected equity recovery by examining option prices and propose a method to extract the default probability from option prices that allows for positive equity recovery. We demonstrate possible applications of our methodology with examples that include large financial institutions in the United States during the 2007–09 subprime crisis.

Options Decimalization

We document the outcome of an options decimalization pilot on Canada's derivatives exchange. Decimalization improves measures of liquidity and price efficiency. The impact differs by the moneyness of an option and is greatest for out-of-the-money options. In contrast with equity studies, decimalization improved depth near the best prices and improved liquidity for larger trades. We conclude with advice on decimalizing options: options that benefit most have underlying volatility less than 40, underlying equity bid-ask spread less than 50 basis points, at least one trade a day, and a distribution of depth skewed toward marketable prices.

Bank Screening Heterogeneity

Production efficiency and financial stability do not necessarily go hand in hand. With heterogeneity in banks' abilities to screen borrowers, the market for loans becomes segmented and a self-competition mechanism arises. When heterogeneity increases, the intensive and extensive margins have opposite effects. Bank informational rents unambiguously decrease welfare and distort effort incentives. But the bank most efficient at screening expands its market share by competing against itself to offer effort-inducing contracts, which decreases the share of non-performing loans. A macroprudential authority acting alone reinforces this tension. Optimality is restored by targeting lending policies toward borrowers with intermediate abilities.

What Fed Funds Futures Tell Us About Monetary Policy Uncertainty

The uncertainty around future changes to the Federal Reserve target rate varies over time. In our results, the main driver of uncertainty is a "path" factor signaling information about future policy actions, which is filtered from federal funds futures data. The uncertainty is highest when it signals a loosening cycle. The uncertainty raises the risk premium in a loosening cycle, reducing the transmission of target changes to longer maturities. Our results trace the information content of federal funds futures to hedging demand.

Quantitative Easing in a Small Open Economy: An International Portfolio Balancing Approach

This paper studies the effects of quantitative easing (QE) in a small open economy dynamic stochastic general-equilibrium model with international portfolio balancing. Portfolios are classified as imperfectly substitutable short-term and long-term subportfolios, each including domestic and foreign bonds. Unlike in standard small open economy models, both domestic and foreign bonds may be traded internationally. The model links the domestic term premium to the global term premium, and the implication of the model on the effectiveness of QE policies in reducing the domestic term premium depends crucially on the degree of substitutability between domestic and foreign bonds. The estimated model implies that QE in small open economies is expected to be much less effective on long-term yields because of the high substitutability between home and foreign assets found in the data. In the model, this causes the effect on the exchange rate to be limited. The paper also shows that foreign investors' access to the domestic debt market is essential when evaluating the QE policy; ignoring foreign investors' access would mistakenly make the policy look more effective.

Information Sharing and Bargaining in Buyer-Seller Networks

This paper presents a model of strategic buyer-seller networks with information exchange between sellers. Prior to engaging in bargaining with buyers, sellers can share access to buyers for a negotiated transfer. We study how this information exchange affects overall market prices, volumes and welfare, given different initial market conditions and information sharing rules. In markets with homogeneous traders, sharing always increases total trade volume. The market reaches Walrasian trade volume when there are more buyers than sellers or when sellers have more bargaining power. In most cases, market surplus is completely reallocated to sellers. In the markets with heterogeneous traders, sharing may either increase or decrease total trade volume. When sellers have more bargaining power than buyers, information exchange leads to trade above the Walrasian level, thus leaving inefficiency only due to overproduction of high-cost sellers. As a result of information sharing, the buyers who value goods the least will be squeezed out from the market independent of their location and bargaining power. We also show that if, together with information exchange, sellers assign property rights on the information, exchange leads to lower volume and market prices than exchange without property rights.

Non-Bank Investors and Loan Renegotiations

We document that the structure of syndicates affects loan renegotiations. Lead banks with large retained shares have positive effects on renegotiations. In contrast, more diverse syndicates deter renegotiations, but only for credit lines. The former result can be explained with coordination theories. The puzzling effect of syndicate diversity in term loan renegotiations derives from the growth of collateralized loan obligations (CLOs) in the syndicated loan market and the coordination between these vehicles and lead banks. CLOs that have a relationship with the lead bank of the renegotiated loan are strong supporters of amount-increase renegotiations, arguably because this gives them access to attractive investments. Related CLOs fund not only their portion of the loan increase, but also the portion that was supposed to be funded by the lead bank. Our findings highlight the previously unrecognized role of the growing presence of non-bank lenders in corporate lending.